CHAPTER 7

LAUNDRY SCHEDULING AND QUALITY ASSURANCE

One of the supply officer's responsibilities aboard ship is to provide quality laundry service to the ship's personnel. The laundry must be done in a reasonable time period and still be quality work. To do this, daily operations must be scheduled and laundry personnel must prevent damage to laundered items.

As a Ship's Serviceman second class, you may be called on to prepare a schedule for your laundry. This includes figuring out your capabilities in the laundry and preparing a schedule based on these capabilities, and at the same time making sure completed work is of good quality. Quality assurance in the laundry is done through training and observation of laundry personnel. To maintain high quality, you must know the causes of clothing damage and take preventive measures to avoid damage. In this chapter we will discuss methods of scheduling laundry operations and preventing damage to clothing.

THE SHIP'S LAUNDRY

The ship's laundry operates on a workflow concept. Figure 7-1 illustrates the workflow of

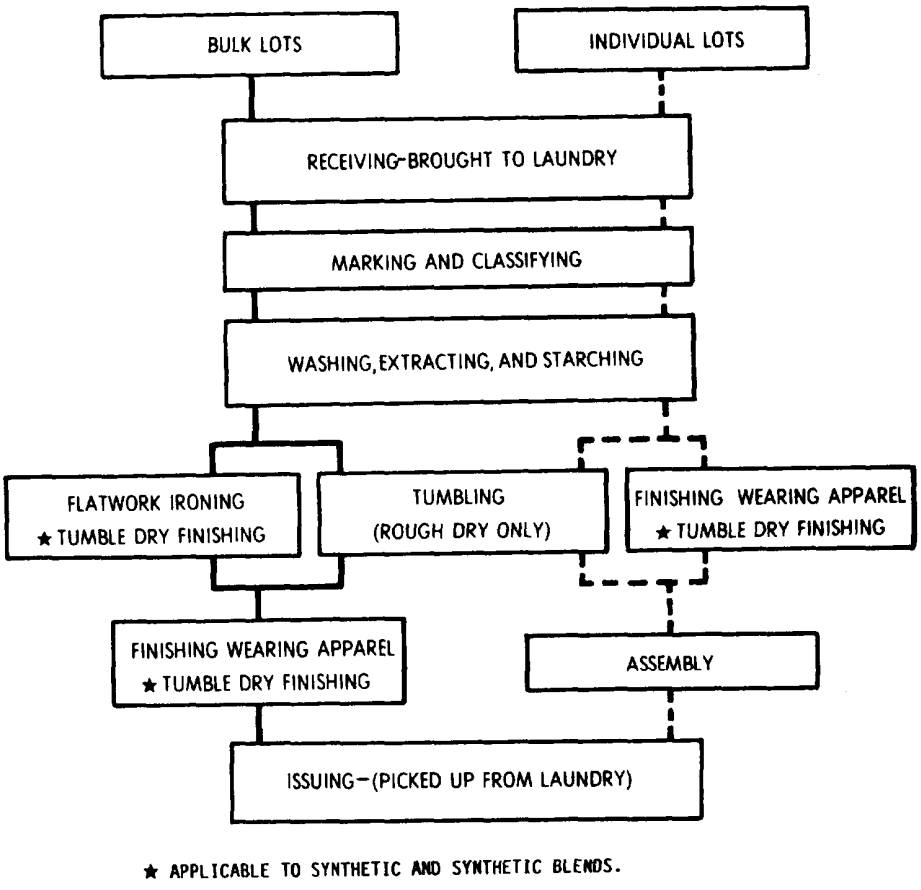

Figure 7-1.—Laundry workflow.

bulk and individual lots into the laundry. You must make sure the lots are carefully routed through the laundry so the work can be completed on time. The standard time for completing these lots is 24 to 72 hours. Scheduling work in the laundry is based on the following factors:

- Number of personnel aboard
- Number and competence of laundry personnel
- Processing standards
- Capacity of equipment
- Equipment production standards
- Past records

SIZE AND COMPETENCE OF LAUNDRY CREW

Statistically there should be 1 laundryman for 75 to 100 crew members. Normally, this does not happen and additional nonrated personnel are required to operate the laundry. These personnel may come as strikers or detailed similar to foodservice attendants in the general mess. If shortages of personnel occur, the schedule may have to be adjusted to meet laundry capabilities. The supply officer will advise the chain of command when the number of strikers is not adequate to support the ship's store operation.

The competence of laundry personnel working for you should also be considered. For the laundry to operate properly, qualified personnel should always be available, and time should be spent training less experienced laundry personnel. You should make sure that your personnel have access to publications that explain the basic fundamentals of laundry operation. The NAVRESSO fleet assistance team is also available to help in any problem areas, and this should improve your laundry operation. The fleet assistance team is discussed completely in the NAVSUP P-487.

PROCESSING STANDARDS

The minimum processing standards based on a 96-hour laundry workweek include the following:

- Provide one change of work clothing, underwear, socks, and one towel per day, per accommodation
- Provide one change of berth linen (per accommodation) and one change of officer and CPO dining facility linen per week
- Finish press three work uniform shirts and trousers per officer and CPO/SNCO accommodation per week
- Finish press one dress uniform shirt and trousers per crew (plus troops) accommodation per week
- Provide sufficient wash and utility press capability consistent with accommodation requirements on surface ships with embarked Marine Corps detachments
- Have laundry capacities capable of supplementing facilities of tended ships in addition to the requirements of their own ship's company on tenders and repair ships

The above standards amount to 24 pounds of laundry, per crew member, per 96-hour workweek (minimum standards). It can be anticipated that approximately 80 percent of the workload will require tumble drying, 20 percent pressing, and 2 percent of this pressing workload will be flatwork if available.

EQUIPMENT PRODUCTION STANDARDS

The capacity and production capabilities of your equipment are also considered in scheduling laundry work. The equipment capacity is determined by the manufacturer. Equipment should not be overloaded or used in a manner that would increase the possibility of damage. The equipment production standards are the operational capabilities of one particular piece of equipment in a given period of time. This may vary depending on the operator's ability and the condition and arrangement of the equipment and utilities. The average production standards are based on reviews of past laundry records:

- Washer/extractor— 1 load per hour
- Dryers—2 loads per hour
- Shirts (shirt set of three presses)—20 per operator hour (poh)
- Trousers (trousers set of three presses)—20 poh
- Shirts single press 554— 12 poh
- Trousers single press 554—9 poh

PAST RECORDS

Records of work previously done in the bulk work and press deck logs should be considered when you are making the laundry schedule. The bulk work logs tell you how much bulk work was done previously. The press deck logs tell you how much press work was done previously. If the previous laundry supervisor kept a weekly laundry summary sheet of all this work, you will already have a summary. This summary sheet is illustrated in figure 7-2.

WEEKLY LAUNDRY SCHEDULE REPORT

DATE

Week of _____ to _____

DESCRIPTION OF PROCESSED ITEM	UNIT	MON	TUES	WED	THUR	FRI	SAT	TOTAL LB/PC
Rough-Dry Whites – Divisional	lb							
Rough-Dry Dungarees – Divisional	lb							
OFFICER/CPO Press Khakis	lb/pc							
OFFICER/CPO Press Whites	lb/pc							
OFFICER/CPO Press Whites	lb/pc							
OFFICER/CPO Rough Dry	lb/pc							
Sick Bay/Dental Smocks, Whites Linen, Towels	lb/pc							
Wardroom Linen/Towels, Whites	lb/pc							
Barber Towels, Smocks	lb/pc							
Mess Cooks' Whites/Rough-Dry Whites	lb							

Grand total lbprocessed for the week . . . . . lb/pieces . . . . . _____

**********BEGINNING INVENTORY**********

Supplied Usage Date	Unit	Plus Receipt	Less Ending Inv.	Equals Price lb used per lb	cost Ext
Two-Shot Detergent	lb				
Sour	lb				
Starch	lb				
Miscellaneous	lb				

Grand total cost of supplies $_____

Total personnel on board for the inclusive dates (for the week) _____

Total lb processed (the grand total lb processed for the week) _____

Total lb processed per person (divide grand total lb processed by onboard count) _____

Total cost per person (divide grand total cost by onboard count) _____

Standard of Patron Service Requirements

Wash—24 lb per person per week

Finished work (Officers/CPOs, 3 shirts and trousers each (work))

Finished work (ea 1 dress uniform)

Figure 7-2.—Laundry summary sheet.

If the previous laundry supervisor did not keep this summary sheet, or did not keep the laundry logs properly, it may make your preparation of the laundry schedule more difficult. In this case, use your past experiences plus other factors that determine laundry scheduling to prepare a workable and effective schedule. You may have to adjust the schedule periodically for smooth operations.

THE IDEAL LAUNDRY SCHEDULE

The ideal schedule fulfills the laundry requirements aboard your ship. Fulfilling these requirements entails a trial and error period where you adjust the schedule until requirements are met. Since the factors that determine a laundry schedule vary, it is difficult and impractical to give you a schedule; however, we will give you the facts and groundwork for making a schedule.

Some laundries use the daily schedule (fig. 7-3). This type of scheduling allows the bulk lots to be delivered daily instead of once or twice a week. This is not only an easier way of scheduling operations, but it eliminates the stowage of soiled clothing in the berthing spaces and the odors associated with them. The main problem with the daily schedule is delivery and pickup. You must have complete control of delivery and pickup. As the laundry supervisor, you should have the names of each divisional laundry petty officer to make sure the laundry is picked up and delivered on time. If the laundry is not picked up and delivered by a division daily, you will run into a light load on one day and a heavy load on another day. Laundry that is not picked up daily will eventually become cluttered with soiled laundry and cause an unsanitary condition.

LAUNDRY SCHEDULE

Monday	Officer All division bulk work Cooks and messcooks Wardroom table linen
Tuesday	CPO All division bulk work Cooks and messcooks CPO table linen
Wednesday	Officer All division bulk work Cooks and messcooks All wardroom linen
Thursday	CPO All division bulk work Cooks and messcooks All CPO linen
Friday	Cooks and messcooks Field day Finish up leftover laundry
Saturday	Closed in port At sea: Cooks and messcooks CPO and officer table linen

Figure 7-3.—Daily laundry schedule.

On some ships, the daily schedule may not fit the requirements of the laundry. This may be due to heavy workloads, lack of water, steam, or broken equipment. In any case, you have to prepare a schedule to fit your laundry capabilities. Computing your laundry capabilities can be simplified by using the laundry worksheet illustrated in figure 7-4. Use the following steps when computing your capabilities:

1. Enter the crew size and multiply by 24 to arrive at how much laundry you should be capable of processing a week.
2. Enter the number of officers and chief petty officers aboard.
3, Enter the number of laundry crew (you should have approximately 1 laundryman for each 75 to 100 crew members).
4. Enter the total number of washer extractors, tumbler dryers, and three press operator stations aboard.
5. Multiply the number of installed washer extractors by their weight capacity. Since the production standard for a washer extractor is one load an hour this figure will tell you how much you can expect to wash in an hour.
6. Multiply that hourly figure by 96 and it will tell you how much you can wash in a 96-hour workweek.
7. Multiply the number of installed dryers by their weight capacity. Since the production standard for a dryer is two loads an hour multiply the figure you arrive at by 2 and this will give you your hourly drying capacities.
8. Multiply this figure by 96 to arrive at your drying capabilities for a 96-hour workweek.
9. Since the production standard for a three-press operator station is 20 shirts or trousers per hour, multiply the number of three-press

LAUNDRY SCHEDULE WORKSHEET

A. INFORMATION

1. Crew size _____
2. Officers _____
3. CPOs _____
4. Size of laundry crew _____
5. Total washer extractors _____
6. Total tumbler dryers _____
7. Total three-press operator stations _____

B. WORKLOAD PER 96-HOUR WORKWEEK

1. Crew size _____ times 24 lb equals the pounds per week _____

C. WASHING CAPABILITIES

1. Number of washer extractors _____ times the weight capacity _____ equals the amount of clothes washed per hour _____
2. 96 times the amount of clothes washed per hour _____ equals the total washing capability for a 96-hour workweek of _____

D. DRYING CAPABILITIES

1. Number of tumbler dryers _____ times the weight capacity _____ times 2 equals the amount of clothes dried per hour _____
2. 96 times the amount of clothes dried per hour _____ equals the total drying capability for a 96-hour workweek of _____

E. PRESSING CAPABILITIES

1. Number of three-press operator stations _____ times 20 equals the total amount of shirts or trousers you can press per hour of _____
2. 96 times the amount of shirts or trousers pressed per hour _____ equals the total pressing capabilities for a 96-hour workweek of _____

F. COMPUTING POUNDS OF LAUNDRY PER DAY

1. The total pounds per week of _____ divided by the number of days the laundry works per week of _____ equals the total pounds you can expect per day of _____

G. COMPUTING THE TOTAL NUMBER OF SHIRTS AND TROUSERS PRESSED PER WEEK

1. Total officers and CPOs on board _____ times 6 equals the total amount of shirts or trousers pressed per week of _____

Figure 7-4.—Laundry worksheet.

operator stations by 20. This figure tells you how much you can press per hour.

10. Multiply this hourly total by 96 and it will give you your pressing capabilities for a 96-hour workweek.

11. Determine your daily workload by taking the total pounds done in a week (24 times crew size) and divide it by the number of days your laundry works a week.

12. Determine your pressing requirements by multiplying total officers and CPOs by 6 to arrive at the approximate total of shirts and trousers you will press in a week.

Follow the steps in figures 7-5 and 7-6 (use these figures for examples only) and see how the

LAUNDRY SCHEDULE WORKSHEET

A. INFORMATION

1. Crew size 1,500
2. Officers 100
3. CPOs 150
4. Size of laundry crew 15
5. Total washer extractors 6
6. Total tumbler dryers 8
7. Total three-press operator stations 5

B. WORKLOAD PER 96-HOUR WORKWEEK

1. Crew size 1,500 times 24 lb equals the pounds per week 36,000

C. WASHING CAPABILITIES

1. Number of washer extractors 6 times the weight capacity 100 equals the amount of clothes washed per hour 600
2. 96 times the amount of clothes washed per hour 600 equals the total washing capability for a 96-hour workweek of 57,600

D. DRYING CAPABILITIES

1. Number of tumbler dryers 8 times the weight capacity 50 times 2 equals the amount of clothes dried per hour 800
2. 96 times the amount of clothes dried per hour 800 equals the total drying capability for a 96-hour workweek of 76,800

E. PRESSING CAPABILITIES

1. Number of three-press operator stations 5 times 20 equals the total amount of shirts or trousers you can press per hour of 100
2. 96 times the amount of shirts or trousers pressed per hour 100 equals the total pressing capabilities for a 96-hour workweek of 9,600

F. COMPUTING POUNDS OF LAUNDRY PER DAY

1. The total pounds per week of 36,000 divided by the number of days the laundry works per week of 5 equals the total pounds you can expect per day of 7,200

G. COMPUTING THE TOTAL NUMBER OF SHIRTS AND TROUSERS PRESSED PER WEEK

1. Total officers and CPOs on board 250 times 6 equals the total amount of shirts or trousers pressed per week of 1,500

Figure 7-5.—Laundry worksheet (example).

LAUNDRY SCHEDULE (Example Only)

Day of the week	Division	Total personnel	Times	lb per wk	Total
Monday	Officer	100	×	12	= 1,200
	Division B	100	×	24	= 2,400
	Division C	100	×	24	= 2,400
	Division A	50	×	24	= 1,200
	Total				7,200
Tuesday	CPOs	150	×	12	= 1,800
	Division D	100	×	24	= 2,400
	Division E	50	×	24	= 1,200
	Division F	50	×	12	= 600
	Division G	50	×	24	= 1,200
	Total				7,200
Wednesday	Division I	100	×	24	= 2,400
	Division J	100	×	24	= 2,400
	Division L	100	×	24	= 2,400
	Total				7,200
	*NOTE: Light load this day. Field day should be done.				
Thursday	Officer	100	×	12	= 1,200
	Division O	100	×	24	= 2,400
	Division H	50	×	24	= 1,200
	Division K	50	×	24	= 1,200
	Division R	50	×	24	= 1,200
	Total				7,200
Friday	CPOs	150	×	12	= 1,800
	Division F	50	×	12	= 600
	Division M	50	×	24	= 1,200
	Division N	50	×	24	= 1,200
	Division P	50	×	24	= 1,200
	Division Q	50	×	24	= 1,200
	Total				7,200

*Note: Officer, CPO, and Division F are delivered twice a week. Split the 24 pounds per person per week up when computing these.

USS NEVERSAIL (CGN-6)

DIVISIONAL BREAKDOWN	NUMBER OF PERSONNEL IN EACH DIVISION
Division A	50
Division B	100
Division C	100
Division D	100
Division E	50
Division F	50
Division G	50
Division H	50
Division I	100
Division J	100
Division K	50
Division L	100
Division M	50
Division N	50
Division O	100
Division P	50
Division Q	50
Division R	50
CPO	150
Officer	100
TOTAL CREW	1,500

Figure 7-6.—Laundry schedule (example).

laundry schedule is computed on a ship with 1,500 crew members. Your weekly workload is 36,000 pounds and your daily workload is 7,200 pounds. You are well within your laundry capabilities because your laundry can wash and dry more than 36,000 pounds in a 96-hour workweek. Therefore, your workweek will be considerably less than 96 hours. Your pressing capabilities are also more than adequate.

Now that you have determined your laundry capabilities, your next step would be to determine the number of personnel in each division. This may be a difficult task on a ship as large as a carrier. The best thing to do is schedule a meeting of all divisional laundry petty officers and let them know you are preparing a new laundry schedule and that you will need to know the total number of personnel in each division. Give them a deadline for giving you this information so time won't be wasted. The divisional laundry petty officer may obtain the total number of personnel in each division from the divisional mustering petty officer.

Once you receive the information from all the divisional laundry petty officers, list the divisions and the number of personnel in each division as shown in figure 7-6. Multiply the number of personnel in each division by 24 and this will give you an estimate of the total pounds of laundry you will receive from that division per week. Beginning with Monday, insert a combination of bulk and individual lots until you come close to your daily workload of 7,200. Since officer and CPO laundry is delivered twice a week, you will multiply the number of officers or CPOs by 12 instead of 24 as shown in figure 7-6. Divisional laundry can be done in this fashion also. Look at Division F in figure 7-6. Notice how Division F's laundry is delivered twice a week instead of once. In this case, multiply the total number of personnel in Division F by 12 instead of 24 on the days they will deliver their laundry. Continue the process of inserting divisions in one of the days until all bulk and individual lots are accounted for and you have your laundry schedule.

Your laundry schedule should show such things as (1) type of lot, (2) individuals and groups to whom the lots belong, (3) personnel who deliver the lots, (4) day and hour of delivery, and (5) hour of pickup. Your schedule should also include accompanying instructions showing method of delivery, services rendered, and any other information necessary.

Aboard ship in port, you can normally expect a workload that is equal to one-half of your underway workload. Changing conditions such as underway periods should have a limited effect on your laundry schedule when the above scheduling method is used.

DAMAGE TO LAUNDERED ITEMS

As the laundry supervisor, familiarize yourself with the causes of clothing damage and take preventive measures to eliminate these causes. Careful attention to detail will eliminate claims for damage to clothing in the laundry. Many reasons why clothing is damaged in the laundry are listed below:

- Not conforming to the Navy wash formulas
- Using the washer extractor in manual mode instead of automatic
- Overloading washers and dryers
- Not sorting clothes properly
- Overextracting clothing in the washer/extractor
- Water temperature set too high
- Water levels too low
- Overdrying
- Items such as pens, gum, and so forth, left in pockets of shirts or pants
- Burning or scorching clothing on presses
- Pressing clothing that is too wet
- Dryer fires
- Improper padding of presses

DAMAGE TO CLOTHING DURING THE RECEIVING PROCESS

During the receiving process many problem areas can be identified and corrected before routing lots to the wash deck. After properly identifying all clothing as discussed in *Ship's Serviceman Third Class,* NAVEDTRA 10176, you should quickly check all pockets of the shirts and

trousers for foreign objects. Although it is the responsibility of the crew member to remove all foreign objects from the pockets, some may forget to check. An ink pen left in a pair of trousers can cause havoc in a washer or dryer and result in a large laundry claim. Conducting this inspection on individual lots may be practical but, due to time constraints and lack of manpower, it is impractical for laundry personnel to check every piece of clothing in larger bulk lots. A note should be placed in the Plan of the Day (POD) aboard ship asking crew members to check their pockets carefully for foreign objects before sending their clothes to the laundry to eliminate chances of damage during the laundering process. This note should be inserted in the Plan of the Day periodically to remind crew members.

The receiving laundryman is also tasked with the job of classifying all clothing according to color, fiber content, and degree of soiling. He or she should separate colors from whites to prevent color transfer, and always separate heavily soiled items from lightly soiled items to prevent the further deposition of soil on garments, causing them to look gray or dull. Laundry personnel should also check all individual lots and make sure there are no colored items mixed with whites in the laundry net bags. Laundry net bags should not be overstuffed or they will not wash properly due to lack of mechanical action. Net bags delivered to the laundry overstuffed should be split into two laundry net bags.

DAMAGE TO CLOTHING ON THE WASH DECK

The majority of clothing damage occurs on the wash deck; however, with proper receiving procedures many of these problems can be eliminated. Navy wash formulas must be posted on the wash deck and followed. The Navy wash formulas I through III are shown in figures 7-7 through 7-9. The proper use of these formulas will eliminate the majority of the problems on the wash deck.

Although the washer extractor can operate in the manual mode, always use it in the automatic mode. The Navy wash formulas and washer extractor were designed for operating in the automatic mode and not manual mode. Manual operation leads to an unsanitary wash and poor quality of the finished product. Mechanical problems may also occur during the manual mode when the extractor motor is energized before all the water is drained from the wash drum.

If the washer extractor is extracting properly, it removes all water from clothing except for an amount equal to 55 percent of the dry weight of the laundry. If the clothing is underextracted, there will be an increase in drying time and work backlog will occur. On the other hand, overextraction causes severe wrinkling in clothes that will make pressing difficult.

NOTE: Laundry supervisors should make sure operating instructions for the washer extractor in automatic mode are posted on the wash deck for all personnel to read and follow.

Do not exceed the manufacturers' load limits for equipment. An overloaded washer extractor will not wash or extract properly. Washer extractors with three pockets should be loaded to make sure equal weight is distributed in each pocket. Clothes should be weighed properly before reaching the wash deck to eliminate any problems in loading. Synthetic, synthetic blends, and certified Navy twill should be loaded at rated capacity of the washer extractor. This will improve mechanical action for a better wash and help to avoid wrinkling.

Two-Shot Detergent

The new two-shot detergent consists of a detergent and oxygen-based bleach. Since it comes premixed the laundryman does not have to measure chemicals. The two-shot detergent is safe for use on all fabrics, finishes, or colors. At the time of the writing of this manual, limited information was available on the effects of the two-shot detergent in the laundering process. As information is released and military specifications are prepared, new information will be available.

Sour

Sour is used to brighten and freshen the clothes. Sour does this by neutralizing remaining alkalies and dissolving iron and other metallic salts that cause rust or a yellow discoloration. If you omit sour from your wash load, the clothes may become yellow or dull looking when you dry or iron them. Undersouring gives incomplete neutralization of the alkali; oversouring can cause clothing to stick to press heads and flatwork ironers.

Souring on the last rinse removes sodium bicarbonate, which the rinse water normally contains. Sour usually does not injure the fabric.

NAVY WASH FORMULA I
HIGH TEMPERATURE FORMULA (160°F) WITH OXYGEN BLEACH
CLASSIFICATION: White and Colorfast Cotton, Synthetic and Blended Fabrics (White Certified Navy Twill Uniform Items)

Step	Notes	Operation	Cycle Time (Minutes)	Water Temp (Degrees Fahrenheit)	Water Level (Inches)	Supplies (100-lb Basis)
1	A	Break/suds	10	160	4	16 oz detergent/ oxygen bleach
2		Drain	1			
3		Flush/suds	6	160	4	
4		Drain	1			
5		Spin	1			
6		Rinse	3	160	4	
7		Drain	1			
8		Rinse	3	160	4	
9		Drain	1			
10	B	Sour	4	130	4	2.0 oz sour bacteriostat 12 oz instant starch
11		Drain	1			
12		Final Spin	4			

A. Detergent bleach may be added directly to the wash once water level has been reached.

B. Add starch and run for 10 minutes in the manual mode when starch is required.

FOR SEAWATER WASHING

1. Use seawater in steps 1 and 3. Detergent bleach should be increased to 20 ounces.

2. Use fresh water in steps 6, 8, and 10.

Figure 7-7.—Navy wash formula I.

NAVY WASH FORMULA II
HOT FORMULA (140°F) WITH OXYGEN BLEACH
CLASSIFICATION: Colored Cotton, Synthetic and Blended Fabrics (Khaki Cotton, Certified Navy Twill & Blend Dungarees)

Step	Notes	Operation	Cycle Time (Minutes)	Water Temp (Degrees Fahrenheit)	Water Level (Inches)	Supplies (100-lb Basis)
1	A	Break/suds	10	140	4	16 oz detergent/ oxygen bleach
2		Drain	1			
3		Flush/suds	6	140	4	
4		Drain	1			
5		Spin	1			
6		Rinse	3	140	4	
7		Drain	1			
8		Rinse	3	140	4	
9		Drain	1			
10	B	Sour	4	120	4	2.0 oz sour bacteriostat 12 oz instant starch
11		Drain	1			
12		Final Spin	4			

A. Detergent bleach may be added directly to the wash once water level has been reached.

B. Add starch and run for 10 minutes in the manual mode when starch is required.

FOR SEAWATER WASHING

1. Use seawater in steps 1 and 3. Detergent bleach should be increased to 20 ounces.

2. Use fresh water in steps 6, 8, and 10.

Figure 7-8.—Navy Wash formula II.

NAVY WASH FORMULA III
LOW TEMPERATURE FORMULA
CLASSIFICATION: Woolens, Synthetics, Cotton Blends, and Nonfast Colors

Step	Notes	Operation	Cycle Time (Minutes)	Water Temp (Degrees Fahrenheit)	Water Level (Inches)	Supplies (100-lb Basis)
1	A	Break/suds	5	100 to 120	9	14-16 oz detergent/ oxygen bleach
2		Drain	1			
3		Flush/suds	5	100	9	4 oz detergent if required
4		Drain	1			
5		Spin	1			
6		Rinse	3	90	9	
7		Drain	1			
8		Rinse	3	90	8	
9		Drain	1			
10		Sour	4	90	8	1.0 oz sour
11		Drain	1			
12		Final Spin	4			

A. Detergent bleach may be added directly to the wash once water level has been reached. Detergent amounts are based on a 100-lb basis and must be adjusted according to the size of the washer extractor used.

FOR SEAWATER WASHING

1. Use seawater in steps 1 and 3. Detergent bleach should be increased to 20 ounces.

2. Use fresh water in steps 6, 8, and 10.

Figure 7-9.—Navy wash formula III.

However, when subject to the heat of presses or the flatwork ironer, sour is converted to sodium carbonate that causes damage to the clothing. Do not rinse the clothes after you use sour.

Starch

Starch is designed to give body to and improve the feel of the fabric. It is used on cotton fabrics, but it should never be used on synthetics, synthetic blends, or certified Navy twills (CNTs). The Navy wash formula should show the amount of starch to use on clothing. Do not overuse or underuse starch. If overstarched, clothing will become too stiff. If understarched, clothes will look wrinkled after they are pressed. Overusing starch also causes spotting during pressing. Always drain starch out of the washer extractor while it is running to prevent starch from settling on the top of the load.

DAMAGE TO CLOTHING DURING THE DRYING CYCLE

Most damage that occurs to clothing during drying can be eliminated with proper supervision, training, and attention to detail. The major causes of damage to clothing during the drying cycle include the following:

- Incorrect temperature settings
- No cool-down period
- Overdrying
- Overloading or improperly loading the dryer
- Lack of training in the proper operation of the dryer

As a supervisor, make sure all laundry personnel follow the safety precautions and operating instructions outlined below and discussed in *Ship's Serviceman Third Class,* NAVEDTRA 10176, and the equipment technical manual.

Set the temperature controls on the dryer between 140 to 160 degrees. When drying different types of clothing, you should keep a close watch on the temperature gauges to make sure the dryers do not overheat. Set the timer on the dryer for 20 to 25 minutes and cool-down time for 10 to 15 minutes so the alarm will sound to alert you to check the load. Do not overload the tumbler dryer so that adequate tumbling action is allowed for wrinkle removal. Drying time varies with the clothing mix and size of load, but items containing synthetics or a high percentage of synthetic blends dry much faster than (similar) 100 percent cotton items.

Do not overload dryers. Overloading dryers only extends drying time and causes overdrying. Always separate lightweight items from heavy items. Lighter weight items in an overloaded dryer have a tendency to dry quickly. By the time your heavier items are dried, your lighter items may be at the point of combustion.

Hang dry dungaree shirts that have freshly ironed-on patches. When the ink from these freshly ironed-on patches comes in contact with dryer heat, it becomes a sticky solution that imprints on other clothing in the dryer. However, the patch ages after a couple of washes and can be dried in the normal manner. Do not dry the shirt separately or the ink will ruin the shirt itself.

LAUNDRY DRYER FIRES

Laundries aboard ship are not normally seen as a major fire hazard, but they are just as hazardous as other spaces aboard ship. Clogged lint filters, unattended clothes in the dryers, faulty thermostats and timers, lack of PMS, and operator error are some of the causes of laundry dryer fires.

Laundry dryer fires can have effects far beyond a load of scorched and burned clothes. Vital electrical, piping, and ventilation systems can be damaged, jeopardizing a ship's safety and degrading its mission capability. While the ship undergoes repairs, operational plans and schedules are disrupted.

The principal cause of shipboard laundry fires is spontaneous combustion of residual soil in clothing (particularly paint and drying edible oils) and/or polymeric elastic waistband materials. In the majority of fires, the Navy reports clothing or linen has been left in the dryer unattended. The reason for this is that, in each case, the laundry personnel have not followed proper procedures. A Prevent Laundry Dryer Fires laminated placard will be placed on the front of each dryer. These placards are available from local servmarts or from the supply system. To prevent laundry fires, you should make sure all laundry personnel understand the information contained on this placard and follow the safety precautions outlined in the *Ship's Serviceman Third Class,* NAVEDTRA 10176.

DAMAGE TO CLOTHING DURING PRESSING

Improper padding on presses is the major cause of damage to clothing on the press deck. The supply department is responsible for padding these presses. The laundry supervisor should be actively involved in the maintenance operations to make sure the adjustment on these presses meets laundry requirements. Time should always be allowed for the planned maintenance of all equipment. Laundry requirements for press head pressure is discussed in *Ship's Serviceman Third Class,* NAVEDTRA 10176.

Never allow the press head to remain on the clothing too long. A one-operator station consists of two 54-inch presses and one 36-inch press. This allows the operator between 20 to 30 seconds between lays depending on the laundryman's ability. A laundry man should not try to operate more than one operator station at a time.

Clothes that are properly washed eliminate most chances of scorching during pressing. Improperly washed clothes may scorch because of chemicals left on the garments after extraction. The supervisor should make sure clothes are properly washed and extracted before delivering them to the press deck.

Laundry personnel are responsible for changing pads and covers on the presses. Improper padding of presses can cause broken buttons and a dull-looking product after pressing. The presses should be padded according to the instructions in *Ship's Serviceman Third Class,* NAVEDTRA 10176. If proper padding does not eliminate the broken button problem, have the engineering department check the head adjustments. You can check the adjustment of the press by placing a bed sheet in it, leaving a portion of the sheet exposed. Close the press, and then try to pull the sheet out of the press. The sheet should not slip out; it should remain contained in all areas.

Items that normally require dry cleaning should not be pressed on a hot head press, but on a dry-cleaning press with an air vacuum. If you do not have a dry-cleaning press, give the item a light drying and promptly remove it from the dryer and hang it. Usually, these types of clothing are suitable for wear without pressing.

Always be sure that there are no foreign articles in the clothing. Foreign articles may possibly make their way through the receiving, washing, and drying process without being noticed. If the clothing is pressed with gum, hard candy, and so forth, in the pockets, it will cause stains that may never be removed. If stains do occur, use the stain removal procedures as outlined in *Ship's Serviceman Third Class,* NAVEDTRA 10176.

Remember, damage to clothing during pressing may be caused by the following conditions:

- Improper adjustment of press heads
- Unclean press heads
- Press head on fabric too long
- Improper washing or extraction
- Improper padding on presses
- Foreign articles left in clothing